DTV Cost Models and Profiles
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Costs of implementing digital television broadcast transmission for a local television station licensee can be viewed through four different scenarios that represent a typical range of choices for most TV stations planning an initial pass-through digital operation.

These scenarios assume no original local HDTV programming and reliance on network feeds. Local programming is either encoded as SDTV or HDTV, depending upon scale of system and the broadcaster's business plan. Tower construction costs and local civil engineering requirements, costs for new transmitter sites, new heating, ventilation & air conditioning, and new or upgraded electrical service are not included in these scenarios.

System #1: Small Market Station, Minimum Sign-On

- This model is structured as a basic system, with only minimum compression, monitoring, and RF equipment to comply with the May 2002 mandate. Not all stations would be able to cover their city of license with this low power (500 W transmitter), low-gain antenna and antenna height of 200 feet. If greater coverage is needed or desired, due either to wide market area or other signal propagation challenges, stations may need to move closer to "System #2."

- Cost: Less than $160,000, for these major elements:
  - 1-channel, SDTV Encoder
  - Basic Professional 8VSB Demodulator/ MPEG-2 Decoder
  - 500 W DTV Transmitter
  - RF Power Meter & Sensor
  - RF System including mask filter, dummy load & patch panel
  - Surge suppressor
  - Transmitter Installation
  - 250' Flexible Transmission Line
  - 4-bay ALP Antenna
  - Transmission Line & Antenna Installation

System #2: Medium Market Station, City of License Coverage with Monitoring

- This model reflects the typical requirements of a medium market station with a reasonably compact market area. It features a 5 kW solid-state UHF transmitter, higher gain antenna, and assumes 1,000 ft tower for greater coverage. In addition, this model assumes that the facility would be configured to transmit two channels of standard definition video, while also having a basic transmitter monitoring system.

- Cost: Less than $625,000:
  - 2-channel, SDTV Encoder
  - Basic Transmitter Monitoring System (8VSB Transmission Monitoring, ATSC Signal Monitoring, Stereo Audio Monitoring as well as Basic Professional 8VSB Demodulator/ MPEG-2 Decoder
  - Dedicated (19.39 Mbps) non-protected digital microwave studio-to-transmitter link
  - 5.5 kW solid-state UHF DTV Transmitter
  - RF Power Meter & Sensor
  - RF System including mask filter, dummy load & patch panel
  - Surge suppressor
  - Transmitter Installation
  - 1,100 feet of 3-inch Heliax Transmission Line
  - 24-bay ALP Antenna
  - Transmission Line & Antenna Installation

System #3: Major Market Station, City of License Coverage with Monitoring

- System #3 reflects the typical requirements of a major market station desiring to cover more than its city of license but less than its maximize coverage contour. It features a higher power transmitter than the smaller systems, using inductive output tube (IOT) technology to reach 21 kW from one cabinet. It also features a higher gain antenna, and assumes 1,000-ft tower. In addition, this model assumes that the facility would be configured to transmit a single high-definition television (HDTV) channel with a master-control switcher allowing local station identification and basic program switching, while also having a basic transmitter monitoring system.

- Cost: Less than $1.25 million:
  - 1-channel, HDTV Encoder
  - Master Control Switcher integrated with the HDTV encoder
  - Basic Transmitter Monitoring System (8VSB Transmission Monitoring, ATSC Signal Monitoring, Stereo Audio Monitoring as well as Basic Professional 8VSB Demodulator/ MPEG-2 Decoder)
  - Hotstandby Analog + Digital microwave studio-to-transmitter link (to feed the programming from the studio to the transmitter)
  - 21 kW IOT (tube) UHF DTV Transmitter
  - RF Calorimeter (power output monitor)
  - RF System including mask filter, dummy load & patch panel
  - Voltage regulator & surge suppressor
  - Transmitter Installation
  - 1,100 feet of 6-1/8 -inch Waveguide Transmission Line
  - 30-bay slot antenna
  - Transmission Line & Antenna Installation

System #4: Maximized Major Market Station with More HDTV Capability

- System #4 reflects the typical requirements of a major market station desiring to reach its maximum coverage contour with multiple channels including HDTV. It features a higher power transmitter than System #3, using three combined inductive output tubes (IOTs) to reach 75 kW from the transmitter. It also features a high gain antenna, and assumes 1,000-ft tower. In addition, this model assumes that the facility would be configured to transmit a single high-definition television (HDTV) channel plus two SDTV channels, a master control switcher integrated into the encoder, and a more complete transmitter monitoring system.

- Cost: Less than $2.1 million:
  - 3-channel Encoder (HDTV plus 2 SDTV)
  - Master Control Switcher integrated with the HDTV encoder
  - Comprehensive Transmitter Monitoring System (8VSB Transmission Monitoring, ATSC Signal Monitoring, Dolby AC3 5.1 channel Audio Decoding and Monitoring as well as Professional 8VSB Demodulator/ MPEG-2 Decoder)
  - Hotstandby Analog + Digital microwave studio-to-transmitter link (to feed the programming from the studio to the transmitter)
  - Hotstandby Analog + Digital microwave transmitter–to-studio link (from transferring network programming from the downlink located at the transmitter site to the studio)
  - 75 kW IOT (3-tube) UHF DTV Transmitter
  - RF Calorimeter (power output monitor)
  - RF System including mask filter, cabinet combiner, dummy load & patch panel
  - Voltage regulator & surge suppressor
  - Transmitter Installation
  - 1,100 feet of 7-3/16 -inch Waveguide Transmission Line
  - 25-bay slot antenna